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eralized in power from the saprophytic life and thus step by step become able to infect species farther and farther removed from the original host.

THE BINOCULAR MICROSCOPE.

Felix Jentzsch and Conrad Beck (J. R. M. S. Feb. 1914) present two illuminating articles on the binocular microscope, its past and present. In these papers the binoculars are compared with the monocular as to their effects, and the various types of binoculars are compared and their mechanical structure illustrated. There are three types of binoculars:—

1. Those in which the light from a single objective is geometrically divided, one half going to each eye. The beam of light is itself bisected. Each eye receives all the light from one-half the field.

2. Those in which the pencils of light from every part of one objective field are split, by one device or another, so that a part of each pencil goes into each eye. Thus each eye receives one-half the light from the whole field. In some of the later instruments this sifting or filtering of the light is secured by a half-silvered film which transmits half the light directly, and reflects the other half so that it may be carried to the other eye.

3. Those in which there are two complete monocular microscopes pointed obliquely at the same object. This is useful for low powers only.

The advantages claimed for the newer binoculars of the second class are (1) distinct hygienic value due to less fatigue; (2) a summation of stimuli in both eyes resulting in "vividity"; (3) a certain enhancement of impression due to paralletic effect.

THE JOURNAL OF MICROLOGY.

As an offshoot of the activities of the Postal Microscopical Club, the Secretary, Mr. H. Edwards, is issuing a monthly journal with the above title. It is intended to serve the interests of the amateur and spare-time worker, who finds little to meet his needs in the technical journals. Its space is given to brief articles on simple organisms, to discussions of microscopes and accessories, to methods of mounting microscopic objects, and to queries and answers. There seems to be promise in it of great helpfulness and inspiration to the

isolated amateur worker. The price is merely nominal,—3 s. 6 d. yearly. Address the Secretary, 22 Carnarvon Road, Reading, England.

THE LIFE-CYCLE IN HYPOTRICHOUS INFUSORIA.

Baitsell (J. Exp. Zool. Feb. 1914) has undertaken to determine whether culture conditions could be found for *Oxytricha* and *Pleurotricha* that would eliminate the so-called life-cycle, which assumes the necessity of conjugation to prevent senescence and death as the result of continued division. He concludes that the dying out of some cultures was due, not to a condition of inherent senescence but to the fact that the culture conditions were not entirely favorable. He found that "sister cells" of *Oxytricha* lived twice as long in mass cultures without conjugation as when bred in daily isolation cultures. In *Pleurotricha* he has found culture conditions in which the organism will apparently live indefinitely without conjugation or artificial stimulation,—as Woodruff has earlier found for *Paramecium*.

In the same journal Woodruff has a note showing that his race of *Paramecium* which had gone for 4102 generations without tendency to conjugate presented numerous conjugating pairs. This disposes of the idea that *non-conjugating* races of *Paramecium* have been isolated.

PEARL FORMATION.

Fr. Alverdes (Zeits. Wiss. Zool. CV., 1913, p. 598) discusses the formation and structure of pearls in several pearl-bearing mollusks. The pearl forming layer is ectodermal, but the origin of the sac is uncertain. By inserting ectoderm cells in the mantle tissues sacs similar to the usual pearl-sacs were formed, and in these the pearly layers were deposited. The author found that pearls may or may not have a central foreign body or nucleus. The pearl may be laid down around a parasite, an ovum, or a fragment of inorganic matter. These foreign bodies may produce a kind of pseudo-sac in which the pearl may be laid down in concentric layers.

REGENERATION OF NERVES.

Clark (Jour. Comp. Neur. Feb. 1914) attacks in a new way the questions clustering about degenerating and regenerating nerves.